



*Nutrition Education and Obesity Prevention Branch*

Impact Outcome Evaluation Project

(Statewide Aggregated Data)

FFY 2013

10/1/13

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## Section B: State Nutrition Education Final Report Summary FFY 13

### Section B. Final Report Summary for Evaluations.

Provide the information requested below for any significant evaluation efforts (costing greater than \$400,000) that were completed during the previous year.

In FFY 04, and pre-dating the current federal requirements, the *Nutrition Education and Obesity Prevention Branch (NEOPB)*, then known as the *California Nutrition Network*, asked local projects receiving over \$500,000 in Federal Share to conduct outcome or impact evaluation to proactively demonstrate fiscal responsibility. The term “outcome” refers to evaluation conducted to assess change among individuals exposed to an intervention. The term “impact” refers to evaluation conducted to assess change in a group exposed to an intervention and a group not exposed to the intervention or an alternative intervention. Twelve local projects participated in the first year and in FFY 05 the *NEOPB* lowered the participation threshold to \$350,000. In FFY 13 there was a peak participation of 50, due in part to existing local projects and the influx of new local health departments (LHDs) from the implementation of the *NEOPB*’s new LHD funding model. The 50 projects in FFY 13 represented nearly \$68 million in SNAP-Education funds. The total cost of the evaluations conducted by these local projects was approximately \$723,190 with a maximum of \$82,468 for any single project, well below the USDA’s reporting requirement for impact evaluation. In FFY 2008 USDA guidance specified “If any proposed SNAP-Education evaluation activity exceeds \$400,000 in a State in any year, it is highly recommended that the State agency include an impact assessment that meets the criteria described in the FNS Principles of Sound Impact Evaluation found at: [www.fns.usda.gov/oane/menu/Published/NutritionEducation/Files/EvaluationPrinciples.pdf](http://www.fns.usda.gov/oane/menu/Published/NutritionEducation/Files/EvaluationPrinciples.pdf)”

#### 1. Name of Project or Social Marketing Campaign

*If multiple projects or campaigns were part of a single impact evaluation, please list them all.*

ABC USD	School/District
Alameda County Health Care Services Agency	Local Health Department
Alameda County Office of Education (Coalition)	County Office of Education
Alhambra USD	School/District
Alisal Union School District	School/District
Berkeley USD	School/District
California State University, Chico Research Foundation	College/University
Compton USD	School/District
Contra Costa County Health Services	Local Health Department
Del Norte USD	School/District

East Los Angeles College	College/University
Elk Grove Unified School District	School/District
El Monte City School District	School/District
Fresno County Office of Education	County Office of Education
Fresno County Public Health	Local Health Department
Hawthorne School District	School/District
Humboldt County Office of Education	County Office of Education
Huntington Beach Union High School District	School/District
Long Beach Unified School District	School/District
Long Beach, City of, Department of Public Health	Local Health Department
Los Angeles County Office of Education	County Office of Education
Los Angeles Trade-Technical College	College/University
Los Angeles Unified School District	School/District
Merced Office of Education	County Office of Education
Monrovia Unified School District	School/District
Monterey County Health Department	Local Health Department
Montebello Unified School District	School/District
Newport-Mesa Unified School District	School/District
Orange County Health Care Agency	Local Health Department
Orange County Superintendent of Schools - ACCESS	County Office of Education
Orange County Superintendent of Schools - Coalition	County Office of Education
Pasadena Unified School District	School/District
Riverside, County of, Health Care Services Agency	Local Health Department
San Bernardino County Superintendent of Schools	County Office of Education
San Bernardino County Department of Public Health Nutrition	Local Health Department
County of San Diego	Local Health Department
San Francisco Unified School District	School/District
San Joaquin County Public Health Services	Local Health Department
Santa Ana Unified School District	School/District
Santa Barbara County Health Department	Local Health Department
Shasta County Health and Human Services Agency	Local Health Department
Shasta County Office of Education	County Office of Education
Sonoma County Department of Health Services	Local Health Department
Stanislaus County Health Services Agency	Local Health Department
Tulare County Office of Education	County Office of Education
Tulare County Health and Human Services Agency	Local Health Department
Ukiah Unified School District	School/District
University of California, Cooperative Extension of Alameda County	University of California Cooperative Extension
Ventura County Public Health Department	Local Health Department
Ventura Unified School District	School/District

## 2. Key Evaluation Impact(s)

*Identify each impact being assessed by the evaluations. For example are SNAP-Ed participants more likely than non-participants to report they intend to increase their fruit and vegetable intake? Or do a greater proportion of SNAP-Ed participants choose low-fat (1% or skim) milk in the school cafeteria compared to non-participants?*

The primary outcomes for the impact outcome evaluation project were fruit, vegetable (FV), and sugar-sweetened beverage (SSB) consumption. The secondary outcomes were factors that influence it including those listed in Table 1.

Table 1: Impacts Assessed by the Evaluation and Number of Local Projects Measuring Each	
Fruit and vegetable consumption (50)	Access to fruit and vegetables (36)
Sugar-sweetened beverage consumption (45)	Physical activity (36)
Other food/beverage consumption and dietary habits (45)	Food security (9)
Perceived parental consumption (36)	Self-rating of dietary habits (9)

## 3. Evaluation participants.

*Describe the population being evaluated and its size. For example, all (1200) kindergarten students at public schools in one school district.*

Fifty local projects in five channels collected data from a total of 12,932 individuals (Table 2). Most of the local projects provided nutrition education in schools whether or not they were in the school channel (Table 3). Overwhelmingly, youth local projects worked in schools, with work occurring during and after school. While adult interventions took place in 35 school sites, in general, adult intervention sites tend to be more varied than youth sites. Local projects working with adults also worked in rehabilitation centers, food stamp offices, Head Start programs, farmers' markets, emergency food assistance sites, adult job training sites, extension offices, church, and other sites, like childcare centers.

Table 2: Number of Matched Surveys, Intervention and Control, for All Local Projects			
Channel of Impact/Outcome Evaluation Local Project	Number of Matched Surveys- Intervention	Number of Matched Surveys- Control	Total
School/District (20)	5,698	797	6,495
College/University (3)	499	21	520
County Office of Education (10)	1,767	98	1,865
Local Health Department (16)	3,844	116	3,960
University of California Cooperative Extension (1)	92	0	92
Total (50)	11,900	1032	12,932

<b>Table 3: Number Youth and Adult Intervention/Control Sites</b>				
	Youth Intervention Sites	Youth Control Sites	Adult Intervention Sites	Adult Control Sites
At School - School Day	248	33	9	No Adult Control Groups
At School - After School	88	14	0	
At School - School Day & After School	183	0	26	
Adult Rehabilitation Centers	0	0	19	
Food Stamp Offices	0	0	9	
Head Start Programs	0	0	6	
Farmers Markets	0	0	4	
Emergency Food Assistance Sites	0	0	3	
Adult Education & Job Training	0	0	3	
Extension Offices	0	0	2	
Church	0	0	1	
Other	8	1	6	

#### 4. Assignment to intervention and control or comparison conditions

##### a. Describe the unit of assignment to intervention and control groups.

*For example, an intervention focused on kindergarten students may assign school districts, individual schools, classrooms, or individual student to intervention and control groups.*

Most frequently, the site (e.g. the particular school setting) was the unit of assignment. Impact was assessed by measuring change in individuals that had a pre-test and a post-test.

##### b. Describe how assignment to intervention and control groups was carried out.

*Be explicit about whether or not assignment was random. For example, ten kindergarten classrooms were randomly assigned to intervention and control groups.*

Four local projects **randomly sampled** participants, and the remaining forty-six local projects recruited participants using **convenience sampling** methods.

**c. Describe how many units and individuals were in the intervention and control groups at the start of the intervention.**

A total of 12,932 individuals participated in the 50 evaluations. Of these, 11,900 received the local project-specific intervention and 1,032 were in a control group selected by the local project. Table 4 shows the individuals by age group.

- Intervention: 11,900 (92%)
- Control: 1,032 (8%)

<b>Table 4: Individuals By Age And Condition Of Assignment</b>			
Age Category	Intervention Group Participants	Control Group Participants	Total
Youth, 8-13 years	9,336	425	9,761
High School, 14-17 years	1,476	607	2,083
Adult 18+ years	1,088	0	1,088
Total	11,900	1,032	12,932

**5. Impact Measure(s)**

*For each evaluation impact, describe the measure(s) used. Descriptions should indicate if the focus is on knowledge, skills, attitudes, intention to act, behavior or something else. Each measure should also be characterized in terms of its nutritional focus, e.g. low fat food preparation, number of whole grain servings consumed, ability to accurately read food labels. Finally indicate if impact data were collected through observation, self-report, or another method.*

Table 5 shows the tools used to measure the change in FV and SSB consumption, the number of local projects that used the tool, and the number that showed a statistically significant change in the desired direction.

**Table 5. Measures of Fruit and Vegetable and Sugar-Sweetened Beverage Consumption for Adults, Teens, and Youth**

Measures of Fruit and Vegetable and Sugar-Sweetened Beverage Consumption*	Number of Local Projects Using the Tool (Number with Significant Results for Fruits, Vegetables, Both Combined, and/or Sugar-Sweetened Beverages)
• <i>Food Behavior Checklist (FBC)</i> <sup>1,2,3</sup>	9(9)
• <i>Fruit and Vegetable Checklist (FVC)</i> <sup>4</sup>	5(5)
• <i>Network High School Survey</i> (i.e. <i>Youth Risk Behavior Survey (YRBS)</i> ) <sup>6,7,8,9,10</sup>	5(5)
• <i>Network Youth Survey</i> (i.e. <i>SPAN</i> , but coded differently) <sup>5,6,7,8,9</sup>	30(27)

**a. Describe the points at which data were collected from intervention and control group participants.**

*For example, these points may include pre-test or baseline, midway through the intervention, post-test as intervention ends or follow-up some weeks or months after the intervention ends.*

For most local projects, the pre-test took place before the beginning of intervention and post-tests took place after the last intervention session. The span of time between pre-test and post-test varied widely between local projects. For some it was just five weeks and for others, mostly schools, it was a full 9 months.

## 6. Results

*Compare intervention and control groups at each measurement point, by individual measure. Report the number of intervention and the number of control group participants measured at each point. Describe any tests of statistical significance and the results.*

### *Fruit and Vegetable Consumption-Adults*

The *Food Behavior Checklist (FBC)* and *Fruit and Vegetable Checklist (FVC)* were used to measure adult consumption of FV for 14 local projects. Both the FBC and the FVC use identical questions to measure FV-related behaviors. These surveys were validated with low-income populations in California making them a fitting measure of consumption for this evaluation. Local projects provided data using the *FBC* and *FVC* from 1,088 individuals from intervention groups only. In FFY 13, no local projects working with adults were able to secure an appropriate control group. Results showed that 1,088 individuals receiving an intervention reported an increase of 0.70 cups of total FV (Table 6). Fruit alone and vegetables alone increased by just over one-third and just under one-third of a cup, respectively. The increase in each fruit and vegetables alone, and total consumption of FV combined were statistically significant ( $p < 0.001$ ). Intervention

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\* The number of local projects in Table 5 does not add to 50 because some local projects pool resources and perform one combined evaluation, while others conduct evaluations with multiple age groups.

participants also showed significant improvement in eating FV as a snack, eating more than one kind of fruit a day, eating more than one kind of vegetable a day, and eating two or more vegetables at their main meal ( $p<0.001$ ). Eating or drinking citrus fruit and juice decreased significantly ( $p<0.001$ ). This may be due in part to the *NEOPB's Rethink your Drink* messages encouraging more water and less SSB consumption, along with some interventions that encourage the limiting of fruit juice.

<b>Table 6. FBC and FVC Combined Fruit and Vegetable Results, Intervention</b>				
	<b>Pre-test</b>	<b>Post-test</b>	<b>Difference</b>	<b>p-value</b>
<b>Intervention, N=1,088</b>				
Total Consumption (cups)	2.45	3.15	0.70	<0.001
Fruit	1.22	1.57	0.35	<0.001
Vegetable	1.23	1.51	0.28	<0.001
<b>Intervention</b>				
Eat FV as Snacks	2.74	3.05	0.31	<0.001
Eat >1 Kind of Fruit Each Day	2.48	2.82	0.34	<0.001
Eat >1 Kind of Veg Each Day	2.60	2.91	0.31	<0.001
Eat 2+ Veg at Main Meal	2.49	2.82	0.33	<0.001
Eat/Drink Citrus Fruit or Juice	1.15	1.10	-0.05	<0.001

#### *Fruit and Vegetable Consumption-Youth & High School*

A total of 30 local projects collected FV consumption data from 9,336 youth receiving an intervention and 425 youth from a control group using the *Network Youth Survey*. Five local projects collected FV consumption data from 1,476 teens receiving an intervention and 607 teens from a control group using the *Network High School Survey*.

Results from the *Network Youth Survey* show that youth receiving an intervention had a 0.46 increase in times per day they ate FV ( $p<0.001$ ) (Table 7). Increases in fruit alone and vegetables alone were also significant ( $p<0.001$ ). Results for youth in the control group showed a non-significant decrease in total FV and vegetables alone ( $p=0.294$  and  $p=0.683$ ).

<b>Table 7. Network Youth Survey Combined Fruit and Vegetables Results, Intervention and Control</b>				
	<b>Pre-test</b>	<b>Post-test</b>	<b>Difference</b>	<b>p-value</b>
<b>Intervention, N=9,336</b>				
Total Consumption (times)	3.45	3.91	0.46	<0.001
Fruit	1.84	2.11	0.27	<0.001
Vegetable	1.61	1.80	0.19	<0.001
<b>Control, N=425</b>				
Total Consumption (times)	3.12	3.25	0.13	0.294
Fruit	1.62	1.79	0.17	0.033
Vegetable	1.46	1.43	-0.03	0.683



The *Network High School Survey* utilizes six FV consumption questions from the *Youth Risk Behavior Survey (YRBS)*. Only 5 questions were used for these analyses because one question asks about 100% juice consumption. With an increasing emphasis on healthy beverage consumption, in FFY 12, it was deemed no longer appropriate to include juice in the FV analyses. Juice consumption for youth and teens can be found in tables 13 and 14. Data from high school students receiving the intervention (n=1,476) show that vegetable consumption alone and FV combined increased significantly ( $p<0.001$ ) (Table 8). Notably, the change in the combined FV measure was driven by vegetable consumption. Among the control group (n=607), there were no significant changes for fruit, vegetables, or FV combined (Table 8).

<b>Table 8. Network High School Survey Combined Fruit and Vegetable Results, Intervention and Control</b>				
	<b>Pre-test</b>	<b>Post-test</b>	<b>Difference</b>	<b>p-value</b>
<b>Intervention, N=1,476</b>				
Total Consumption (times)	2.45	2.70	0.25	<0.001
Fruit	1.03	1.03	0.00	0.889
Vegetable	1.41	1.68	0.27	<0.001
<b>Control, N=607</b>				
Total Consumption (times)	2.42	2.49	0.07	0.463
Fruit	1.00	0.95	-0.05	0.321
Vegetable	1.43	1.54	0.11	0.082

#### *Sugar-Sweetened Beverage Consumption-Adults*

In FFY 13, in addition to the long-standing goal of increasing FV consumption, *NEOPB* formally adopted a new goal of lowering consumption of SSBs. As a minimum for impact outcome evaluation, local projects were required to evaluate changes in either FV or SSB consumption, or both. Since the *FVC* is a subset of questions from the *FBC*, only local projects working with adults using the *FBC* evaluated changes in SSBs. The *FBC* uses two questions to capture SSB consumption, one about (non-100% juice) fruit drinks, sports drinks, and punch, and the other about non-diet soda. Data from 734 adults showed a significant decrease in both SSB measures ( $p<0.001$ ) (Table 9).

<b>Table 9. FBC Sugar-Sweetened Beverage Results, Intervention</b>				
	<b>Pre-test</b>	<b>Post-test</b>	<b>Difference</b>	<b>p-value</b>
<b>Intervention, N=734</b>				
Drink Fruit Drinks, Sports Drinks, Punch	2.11	1.89	-0.22	<0.001
Drink Soda	1.95	1.78	-0.17	<0.001

#### *Sugar-Sweetened Beverage Consumption-Youth & High School*

In FFY 13, local projects working with both youth and high school students had success in decreasing consumption of SSBs. Among 9,202 youth, consumption decreased significantly for fruit drinks, sports drinks, punch, and soda ( $p=0.004$  and  $p<0.001$ ) (Table

10). For 414 control subjects, consumption of fruit drinks, sports drinks, and punch increased significantly, while consumption soda remained unchanged.

<b>Table 10. Network Youth Survey Sugar-Sweetened Beverage Results, Intervention and Control</b>				
	<b>Pre-test</b>	<b>Post-test</b>	<b>Difference</b>	<b>p-value</b>
<b>Intervention, N=9,202</b>				
Drink Fruit Drinks, Sports Drinks, Punch	0.83	0.80	-0.03	0.004
Drink Soda	0.58	0.52	-0.06	<0.001
<b>Control, N=414</b>				
Drink Fruit Drinks, Sports Drinks, Punch	0.79	0.98	0.19	0.001
Drink Soda	0.63	0.66	0.03	0.539

Among high school students receiving the intervention, there was a significant decrease in fruit drink, sports drink, and punch consumption, but no change in soda consumption ( $p<0.001$  and  $p=0.089$ ) (Table 11). No significant changes were noted for high school students in the control group.

<b>Table 11. Network High School Survey Sugar-Sweetened Beverage Results, Intervention and Control</b>				
	<b>Pre-test</b>	<b>Post-test</b>	<b>Difference</b>	<b>p-value</b>
<b>Intervention, N=1,489</b>				
Drink Fruit Drinks, Sports Drinks, Punch	0.97	0.85	-0.12	<0.001
Drink Soda	0.67	0.63	-0.04	0.089
<b>Control, N=616</b>				
Drink Fruit Drinks, Sports Drinks, Punch	1.17	1.09	-0.08	0.082
Drink Soda	0.68	0.66	-0.02	0.506

#### *Consumption of Other Foods, Food Security, and Eating Habits- Adults*

The FBC measures dietary practices other than consumption of FV, and adults receiving an intervention showed improvement in some areas, yet not in others. This is not surprising given local projects working with adults frequently tell us that their interventions do not target all the items on the FBC. Often times, the benefits of removing the skin from chicken and eating more fish are never discussed in nutrition education lessons at all.

At post-test, adults reported being significantly more likely to drink milk at all, yet they were drinking or using milk on cereal less frequently (Table 12). Results showed more adults were taking the skin off chicken and using food labels ( $p<0.001$ ). Intervention participants also rated their overall eating habits 0.80 of a point higher on a 1-10 scale at post-test ( $p<0.001$ ). Despite this, adults reported that, at post-test, they ate fish less often ( $p<0.001$ ).

<b>Table 12. Changes Reported in Other FBC Measures- Adults</b>				
	<b>Pre-test</b>	<b>Post-test</b>	<b>Difference</b>	<b>p-value</b>
<b>Intervention, N=638</b>				
Drink Milk	2.71	2.81	0.10	0.001
Drink or Use Milk on Cereal Past Week	1.12	1.10	-0.02	0.032
Take Skin off Chicken	2.92	3.08	0.16	<0.001
Eat Fish Past Week	1.41	1.31	-0.10	<0.001
Use Food Labels	2.31	2.64	0.33	<0.001
Run Out of Food by End of Month	2.05	2.00	-0.05	0.154
Rate Eating Habits	5.61	6.41	0.80	<0.001

*Consumption of Other Foods & Trying New Fruits and Vegetables- Youth and High School*  
The Network Youth Survey and the Network High School Survey asked about preference for trying new FV and consumption of foods other than FV. At post-test, youth receiving an intervention reported increased consumption of cheese, milk, yogurt, yogurt drinks, cottage cheese, 100% juice, and water ( $p<0.001$ ,  $p=0.001$ ,  $p<0.001$ ,  $p=0.009$ , and  $p<0.001$ ) (Table 13). Consumption of French fries and chips, and sweets decreased ( $p<0.001$ ). Youth also reported liking to try new FV more often than at pre-test ( $p<0.001$ ). Despite improvements in yogurt consumption and frequency of eating breakfast, youth in a control group reported eating more French fries and chips at post-test.

<b>Table 13. Changes Reported in Consumption of Other Foods and Trying New Fruits and Vegetables- Youth</b>				
	<b>Pre-test</b>	<b>Post-test</b>	<b>Difference</b>	<b>p-value</b>
<b>Intervention, N=8,754</b>				
Cheese	0.84	0.91	0.07	<0.001
Milk	1.44	1.48	0.04	0.001
Yogurt, Yogurt Drink, Cottage Cheese	0.40	0.44	0.04	<0.001
Hot or Cold Cereal	0.73	0.73	0.00	0.864
French Fries or Chips	0.76	0.65	-0.11	<0.001
Water	3.38	3.56	0.18	<0.001
100% Juice	1.23	1.27	0.04	0.009
Sweets	0.78	0.69	-0.09	<0.001
Eat Breakfast	0.85	0.85	0.00	0.287
Like to Try New Fruits	1.36	1.40	0.04	<0.001
Like to Try New Vegetables	1.10	1.13	0.03	<0.001
<b>Control, N=324</b>				
Cheese	0.75	0.82	0.07	0.264
Milk	1.36	1.33	-0.03	0.542
Yogurt, Yogurt Drink, Cottage Cheese	0.35	0.43	0.08	0.041
Hot or Cold Cereal	0.61	0.67	0.06	0.249
French Fries or Chips	0.78	0.89	0.11	0.028
Water	3.13	3.26	0.13	0.135
100% Juice	1.16	1.27	0.11	0.144
Sweets	0.70	0.69	-0.01	0.829
Eat Breakfast	0.81	0.86	0.05	0.021

Like to Try New Fruits	1.31	1.26	-0.05	0.107
Like to Try New Vegetables	0.97	0.95	-0.02	0.638

High school students receiving an intervention showed positive results in 4 areas: cheese consumption, yogurt, yogurt drink, and cottage cheese consumption, and liking to try new fruits and vegetables ( $p=0.001$ ,  $p<0.001$ ,  $p=0.003$  and  $p<0.001$ ) (Table 14). Among control participants, the only significant finding was an increase in liking to try new FV.

<b>Table 14. Changes Reported in Consumption of Other Foods and Trying New Fruits and Vegetables- High School</b>				
	<b>Pre-test</b>	<b>Post-test</b>	<b>Difference</b>	<b>p-value</b>
<b>Intervention, N=1,480</b>				
Cheese	0.86	0.96	0.10	0.001
Milk	1.13	1.18	0.05	0.052
Yogurt, Yogurt Drink, Cottage Cheese	0.22	0.32	0.10	<0.001
Hot or Cold Cereal	0.48	0.50	0.02	0.244
French Fries or Chips	0.73	0.74	0.01	0.683
Water	3.48	3.42	-0.06	0.139
100% Juice	1.92	1.90	-0.02	0.710
Sweets	0.65	0.67	0.02	0.372
Eat Breakfast	0.63	0.66	0.03	0.058
Like to Try New Fruits	1.34	1.39	0.05	0.003
Like to Try New Vegetables	0.96	1.04	0.08	<0.001
<b>Control, N=617</b>				
Cheese	0.82	0.82	0.00	0.937
Milk	1.15	1.15	0.00	0.967
Yogurt, Yogurt Drink, Cottage Cheese	0.21	0.24	0.03	0.219
Hot or Cold Cereal	0.43	0.45	0.02	0.464
French Fries or Chips	0.80	0.75	-0.05	0.134
Water	3.50	3.44	-0.06	0.304
100% Juice	1.95	1.86	-0.09	0.263
Sweets	0.59	0.60	0.01	0.888
Eat Breakfast	0.61	0.61	0.00	0.935
Like to Try New Fruits	1.28	1.36	0.08	<0.001
Like to Try New Vegetables	0.88	0.94	0.06	0.015

### *Social Factors*

In FFY 13, the only social factors local projects measured were perceived parent consumption of FV. Thirty local projects used the 2-item parent consumption factors that were part of the *Network Youth Survey* and *Network High School Survey*. The questions were: How often do your parents eat fruit/vegetables? The four response categories ranged from *never* to *everyday*, with an '*I don't know*' option, with scores ranging from 0-3. For youth, results showed significant increases in perceived parent FV consumption for the intervention group ( $p=0.001$  and  $p=0.049$ ) (Table 15). For high

school students receiving an intervention, only perceived parental consumption of vegetables increased at post-test ( $p=0.015$ ) (Table 16).

<b>Table 15. Changes Reported in Parent Consumption- Youth</b>				
	<b>Pre-test</b>	<b>Post-test</b>	<b>Difference</b>	<b>p-value</b>
<b>Intervention, N=5,963</b>				
How often do your parents eat fruit?	2.30	2.35	0.05	0.001
How often do your parents eat vegetables?	2.34	2.38	0.04	0.049
<b>Control, N=287</b>				
How often do your parents eat fruit?	2.09	2.11	0.02	0.707
How often do your parents eat vegetables?	2.15	2.16	0.01	0.845

<b>Table 16. Changes Reported in Parent Consumption- High School</b>				
	<b>Pre-test</b>	<b>Post-test</b>	<b>Difference</b>	<b>p-value</b>
<b>Intervention, N=698</b>				
How often do your parents eat fruit?	2.07	2.10	0.03	0.431
How often do your parents eat vegetables?	2.12	2.20	0.08	0.015
<b>Control, N=371</b>				
How often do your parents eat fruit?	2.15	2.15	0.00	0.896
How often do your parents eat vegetables?	2.25	2.25	0.00	1.000

#### *Access to Fruit and Vegetables*

A total of 7,994 youth and 908 high school intervention students answered questions about access to FV. The questions were: At your *home* do you have fruits/vegetables to eat? The four response categories ranged from *never* to *always*, with an '*I don't know*' option, with scores ranging from 0-2. For youth in the intervention group, access to both fruits and vegetables increased significantly ( $p<0.001$ ) (Table 17). Significant changes were not observed for the high school intervention group, or the youth or high school control groups (Tables 17 and 18).

<b>Table 17. Changes Reported in Access to Fruits and Vegetables- Youth</b>				
	<b>Pre-test</b>	<b>Post-test</b>	<b>Difference</b>	<b>p-value</b>
<b>Intervention, N=7,994</b>				
At your home, do you have fruit to eat?	1.72	1.76	0.04	$p<0.001$
At your home, do you have vegetables to eat?	1.65	1.70	0.05	$p<0.001$
<b>Control, N=284</b>				
At your home, do you have fruit to eat?	1.75	1.77	0.02	0.620
At your home, do you have vegetables to eat?	1.64	1.67	0.03	0.545

<b>Table 18. Changes Reported in Access to Fruits and Vegetables- High School</b>				
	<b>Pre-test</b>	<b>Post-test</b>	<b>Difference</b>	<b>p-value</b>
<b>Intervention, N=908</b>				
At your home, do you have fruit to eat?	1.71	1.70	-0.01	0.620
At your home, do you have vegetables to eat?	1.62	1.63	0.01	0.694
<b>Control, N=475</b>				
At your home, do you have fruit to eat?	1.80	1.77	-0.03	0.238
At your home, do you have vegetables to eat?	1.70	1.72	0.02	0.599

### *Physical Activity*

The 2-item physical activity survey from the *Network Youth Survey* and *Network High School Survey* asked: ‘Check the days you exercised or took part in physical activity that made your heart beat fast and made you breathe hard for at least 60 minutes’ and ‘Check the days you play outdoors for at least 30 minutes’. Response categories ranged from 0-7. At pre-test, youth respondents receiving interventions reported being physically active for 60 minutes 3.26 days this past week, and 3.80 days at post-test ( $p<0.001$ ) (Table 19). The same youth reported a 0.54 day increase in playing outdoors at post-test ( $p<0.001$ ). Significant changes were not observed for the high school intervention group, or the youth or high school control groups (Tables 19 and 20).

<b>Table 19. Changes Reported in Days with Physical Activity- Youth</b>				
	<b>Pre-test</b>	<b>Post-test</b>	<b>Difference</b>	<b>p-value</b>
<b>Intervention, N=8,913</b>				
Physical Activity $\geq 60$ Minutes	3.26	3.80	0.54	$p<0.001$
Play Outdoors $\geq 30$ Minutes	3.19	3.73	0.54	$p<0.001$
<b>Control, N=346</b>				
Physical Activity $\geq 60$ Minutes	3.15	3.18	0.03	0.791
Play Outdoors $\geq 30$ Minutes	2.84	3.04	0.20	0.150

<b>Table 20. Changes Reported in Days with Physical Activity- High School</b>				
	<b>Pre-test</b>	<b>Post-test</b>	<b>Difference</b>	<b>p-value</b>
<b>Intervention, N=1,488</b>				
Physical Activity $\geq 60$ Minutes	3.82	3.76	-0.06	0.302
Play Outdoors $\geq 30$ Minutes	3.31	3.31	0.00	0.925
<b>Control, N=619</b>				
Physical Activity $\geq 60$ Minutes	3.88	3.76	-0.12	0.193
Play Outdoors $\geq 30$ Minutes	3.19	3.28	0.09	0.356

### *Summary*

In sum, data were collected from 12,932 individuals (intervention and control) by 50 local projects in five intervention channels. Local projects working with adults measured FV and other food and beverage consumption, food security, and self-rating of eating habits. Local projects working with youth and teens measured FV consumption and other food and beverage consumption, physical activity, perceived parent consumption, and access to FV.

Aggregate analysis from these 50 projects revealed highly significant increases ( $p < .001$ ) in the following NEOPB key areas:

- 13.3 percent increase in FV consumption by youth,
- 10.2 percent increase in FV consumption by teens,
- 28.6 percent increase in FV by adults,
- 10.3 percent decrease in soda (only) consumption by youth,
- 12.4 percent decrease in fruit drink, sports drink, and punch (not soda) consumption by teens,
- 9.6 percent decrease in SSB consumption by adults,
- 16.6 percent increase in 60 minutes of physical activity by youth,
- 16.9 percent increase in 30 minutes of outdoor play by youth.

In FFY 13, we continued to see control group sizes decline for local projects working with youth and adults. In FFY 13, not a single local project working with adults could secure an appropriate control group. In the high school age group, however, FFY 13's control group was the largest to date, with over 600 participants. In recent years, *NEOPB* has been encouraging local projects to increase intervention sizes to levels that would allow for smaller changes to be detected. In addition, FFY 13 brought the adoption of a new funding model. This new approach meant that impact outcome evaluation was required of existing local projects and local health departments that were new to the project. For this reason, *NEOPB* staff recognized that FFY 13 would be a capacity building year for all the local health departments new to the project. As capacity is built, we expect each coming year will bring more rigorous evaluation methods, including the addition of more control groups.

The interventions implemented could reasonably be expected to change only some of the factors that were measured. Most notably, adults saw significant improvements in 15 of the 16 items on the *FBC*. For the youth population, results showed statistically significant change for 22 of the 24 items on the *Network Youth Survey*. In comparison, the youth control group showed change in the desired direction for only 2 items. Among high school students, significant change was noted for 10 of 27 items using the *Network High School Survey*, as compared to just 2 items for the high school control group.

While positive, these results do not capture the full impact of the nutrition education. The changes reported here resulted from varied interventions implemented in settings where local projects have little control over conditions that influence FV and SSB

consumption. Advertising, availability of high quality FV in schools and homes, and policies that favor the consumption of calorie-dense foods and beverages are among those that limit the impact of the nutrition education delivered by *NEOPB*-funded local projects. Looking forward, *NEOPB* has confidence that as health departments are allowed more freedom to implement policy, systems, and environmental changes, these supports will work in conjunction with nutrition education, proving the efficacy of the *NEOPB*'s approach to serving low-income Californians.

## 7. Reference

*Provide a contact for additional details and a reference to any other report of the evaluation.*

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